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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/928,745	SKARICA ET AL.	
	Examiner	Art Unit	
	Dalzid Singh	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Transitional After Final Practice

1. The finality of the previous Office action is hereby withdrawn. Applicant's first submission after final filed on 13 September 2005 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the structural connection of claims 1 and 18; and "subscriber signal port" of claims 8 and 11 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites specific structural connection between dual optical switch, first switch fabric, second switch fabric, dual optical trunking modules and service signal port. On Fig. 3, applicant shows modular switch comprising first switch fabric, second switch fabric, dual optical trunking modules and service signal port, however, there is no structure or circuit diagram provided to teach a person of ordinary skill in the art how the components are connected as indicated in the claim. Therefore, the specification fails to provide enabling disclosure for claim 1.

Claim 8 recites, "...the at least one subscriber service module interfacing between one or more subscriber end points and the dual optical switch fabric modules and comprising at least one subscriber signal port, each subscriber service module slot

configured to receive one of the at least one subscriber service module." On Fig. 3, applicant shows modular switch comprising subscriber service module and subscriber routing connection, however, there is no structure or circuit diagram provided to teach a person of ordinary skill in the art how the subscriber service module is interfaced between one or more subscriber end points and the dual optical switch fabric modules and comprising at least one subscriber signal port, each subscriber service module slot configured to receive one of the at least one subscriber service module. Therefore, the specification fails to provide enabling disclosure for claim 8.

Claim 18 recites, "...the dual optical trunking modules coupled to at least one of the dual optical switch fabric modules coupled to the subscriber service modules." On Fig. 3, applicant shows modular switch comprising first switch fabric, second switch fabric, dual optical trunking modules and service signal port, however, there is no structure or circuit diagram provided to teach a person of ordinary skill in the art how the dual optical trunking modules coupled to at least one of the dual optical switch fabric modules coupled to the subscriber service modules. Therefore, the specification fails to provide enabling disclosure for claim 18.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites "...multiple single mode, single fiber..." It is unclear what is being claimed. Does the claim suggest that there are multiple single mode fibers?

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomich (US Patent No. 5,778,116).

Regarding claim 1 (as far as understood), shown in Fig. 1, Tomich discloses fiber distribution unit comprising:

fiber and power access for receiving and distributing physical signal and power connection media (fiber access are coupled to fiber lines (206d, 206e, 208d, 208e) and power access are coupled to power lines (206a-206c, 208a-208c)) and,

dual optical trunking modules coupled to transport switched signals between the dual optical switch fabric modules and a service provider optical network, the optical trunking modules providing optical transport distance and redundancy and include a first trunking module and a second trunking module (optical fibers (206d, 206e, 208d, 208e and S_1 - S_{n-1}) coupled to the distribution is considered as trunking modules; the trunking modules are coupled to the switch module (300); detail of the switch module is shown in Fig. 2; the switch modules comprise of plurality of switch fabrics (SW) which is coupled

to subscribers, see col. 4, lines 24-31; the optical trunking modules coupled to switch control circuit provide redundancy, see col. 5, lines 23-27).

at least one service signal lines coupled to the dual optical trunking modules, via the dual optical switch fabric modules, to transmit and receive signals and provide access to a subscriber (shown in Fig. 1, the service signal lines are coupled to the optical fibers (S_1 - S_{n-1}) for providing service to the subscribers).

Tomich differs from the claimed invention in that Tomich does not specifically disclose ports for fiber and power access and for service signal line. However, it would have been obvious that there exist ports within or on the distribution unit of Tomich. The benefit of having such ports is to provide access and coupling capability to the circuitries within the distribution unit.

Regarding claim 2, in col. 3, lines 61-63, Tomich discloses optical frequency greater than 1 GHz, therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide one or more 1 gigabit Ethernet trunk optic cards or one or more 10 gigabit Ethernet optics cards in order to communicate data at high speed.

Regarding claim 3, as discussed above, Tomich discloses optical switch, and differs from the claimed invention in that the combination does not specifically disclose the dual optical switch fabric modules each comprise 32 Gbps or higher switch fabrics. However, since the combination teach the use of optical switch, therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made

to operate the switch fabric modules with 32 Gbps or higher rate in order to route the signal at a high speed.

Regarding claim 4, Tomich does not specifically disclose that the switch fabric modules support at least one of Ethernet switching, Internet Protocol routing, Multiprotocol Label Switching, and Resilient Packet Ring. However, since the communication system of Tomich provides services to subscribers and is coupled to various networks, therefore it would have been obvious that the switch fabric module support at least one of Ethernet switching, Internet Protocol routing, Multiprotocol Label Switching, and Resilient Packet Ring in order to communicate and provide compatibility with network supporting at least one of Ethernet switching, Internet Protocol routing, Multiprotocol Label Switching, and Resilient Packet Ring networks.

Regarding claim 5, in Fig. 1, Tomich shows that the distribution unit comprised a housing (100).

Regarding claim 6, as shown in Fig. 1, Tomich shows components of the distribution unit comprise environmentally hardened optical and electrical components.

Regarding claim 7, Tomich discloses that the elements are placed within the housing as discussed above and differ from the claimed invention in that Tomich does not specifically disclose the optical and electrical components have an operating temperature range of about -40 degrees Celsius to 60 degrees Celsius. However, in col. 4, lines 31-51, Tomich discloses that the distribution unit is located outside. Therefore, it would have been obvious to an artisan of ordinary skill in the art to provide

enclosure such that the elements within the housing will not be affected by temperature fluctuation.

Regarding claims 8 (as far as understood), as shown in Fig. 1, Tomich shows the fiber terminal is coupled to the subscriber, therefore there must be at least one subscriber service module and a plurality of subscriber service module slots, the at least one subscriber service module interfacing between one or more subscriber end points and the dual switch fabric modules and comprising at least one subscriber signal port, each subscriber service module slot configured to receive one of the at least one subscriber service module (Fig. 2 shows detail of the switch which is also coupled to the subscriber).

Regarding claim 9, as shown in Fig. 1, Tomich shows that the distribution unit comprises a plurality of subscriber service modules (coupled to the optical trunk (S_1 - S_{n-1})), with each subscriber service module slot receiving a different subscriber service module.

Regarding claim 10, in Fig. 3, Tomich shows that the distribution unit is coupled to the subscribers and differs from the claimed invention in that Tomich does not specifically disclose that subscriber service modules collectively provide access to ninety-six homes. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide access to plurality of homes in a community which may have ninety-six homes.

Regarding claim 11 (as far as understood), as shown in Fig. 1, Tomich shows the subscriber service module (coupled to the optical trunk (S_1 - S_{n-1})) is coupled to one or

both of the dual trunking modules (206d, 206e, 208d and 208e), via one or both of the dual switch fabric modules (dual plane switch), providing network connectivity for subscriber signal ports contained in the subscriber service module.

Regarding claim 12 (as far as understood), as discussed above, shown in Fig. 1, the subscriber service module (coupled to the optical trunk (S_1 - S_{n-1})) comprise multiple fiber, environmentally hardened optical transceiver serving as subscriber signal ports (it would have been obvious to provide optical transceiver as environmentally hardened in order to protect the connection and/or fiber; col. 4, lines 32-50, Tomich discloses the use of multimode fiber).

Regarding claim 13, as shown in Fig. 1, Tomich shows plurality of optical trunking (206d, 206e, 208d and 208e) the first optical trunking module transports signals in one direction and the second optical trunking module transports signals in a different direction, each optical trunking module using one or more fibers.

Regarding claim 14, as shown in Fig. 1, Tomich discloses that the optical trunk connections comprise one of a layer 2 link aggregation and a layer 3 link aggregation to enable both route and equipment protection (Tomich teaches redundancy of the communication network, which provide routing and protection, therefore Tomich discloses at least layer 3, which provides routing between networks).

Regarding claim 15, Tomich differs from the claimed invention in that the combination does not specifically disclose the fiber access ports used by the dual optical trunking modules receive signals from and transmit signals to a ring network architecture. However, it would have been obvious to an artisan of ordinary skill in the

art at the time the invention was made to coupled the fiber access port to a ring network architecture in order to transmit and received signal from other network.

Regarding claim 16, as shown in Fig. 3, Tomich shows the subscriber access comprises a point to point connection.

Regarding claim 17, as shown in Fig. 2, Tomich shows that the dual switch fabric modules are coupled to transmit signals to and receive signals from at least one of the dual trunking modules, the dual switch fabric modules further providing at least one of signal switching, routing, traffic aggregation, and redundancy (see col. 4, lines 24-31; and col. 5, lines 23-27).

9. Claims 1-17, 31 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bears (US Patent No. 5,349,457) in view of Ishikawa (US Patent No. 5,936,753).

Regarding claim 1 (as far as understood), Bears discloses fiber terminal (34), as shown in Fig. 3, comprising:

fiber and power access ports for receiving and distributing physical signal and power connection media (fiber access port (40) and power access from power pedestal (46)); and,

dual optical trunking modules coupled to transport switched signals between the dual optical switch fabric modules and a service provider optical network, the optical trunking modules providing optical transport distance and redundancy and include a first trunking module and a second trunking module (as shown in Fig. 8, Bears shows that

the switch modules are coupled to trunking modules, such as plurality of Tx and Rx, on the left-hand side).

As shown in Fig. 3, Bears shows that the dual switch within the fiber terminal (as shown in Fig. 8) can be coupled to the subscriber unit (38) for transmitting and receiving signal. Bears differs from the claimed invention in that Bears does not specifically disclose at least one service signal port. However, it is well known that remote devices, particularly that which provide services to customers or subscribers, requires monitoring and service over time. Therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide service port in order to maintain and/or upgrade the terminal.

Bears disclose dual switching modules and differs from the claimed invention in that Bears does not disclose dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules including a first switch fabric module and a second switch fabric module. However, Ishikawa disclose the use of dual optical switching modules coupled to transmit signals to and receive signals from subscriber service modules ((50) as shown in Fig. 3). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide optical switching as taught by Ishikawa to the system of Bears. One of ordinary skill in the art would have been motivated to so such in order to increase switching speed.

Regarding claim 2, as shown in Fig. 8 of Bears, the combination shows that the fiber terminal is coupled to the optical line cards (32) through fiber optical cable and

differs from this claim in that Bears does not specifically disclose the dual optical trunking modules each comprise one or more 1 gigabit Ethernet trunk optic cards or one or more 10 gigabit Ethernet optics cards. However, it well known that since the cards are coupled to the fiber optical cable, therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide 1 gigabit or 10 gigabits optical cards in order to communicate data at high speed.

Regarding claim 3, as discussed above, the combination of Bears and Ishikawa discloses dual plane switch, and differs from the claimed invention in that the combination does not specifically disclose the dual optical switch fabric modules each comprise 32 Gbps or higher switch fabrics. However, since the combination teach the use of optical switch, therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to operate the switch fabric modules with 32 Gbps or higher rate in order to route the signal at a high speed.

Regarding claim 4, the combination of Bears and Ishikawa does not specifically disclose that the switch fabric modules support at least one of Ethernet switching, Internet Protocol routing, Multiprotocol Label Switching, and Resilient Packet Ring. However, since the communication system of Bears provides services to subscribers and is coupled to various networks, therefore it would have been obvious that the switch fabric module support at least one of Ethernet switching, Internet Protocol routing, Multiprotocol Label Switching, and Resilient Packet Ring in order to communicate and provide compatibility with network supporting at least one of Ethernet switching, Internet Protocol routing, Multiprotocol Label Switching, and Resilient Packet Ring networks.

Regarding claim 5, in Fig. 8, Bears shows that the terminal comprised a housing (it would have been obvious that the housing is environmentally hardened in order to protect elements within the housing).

Regarding claim 6, as shown in Fig. 8, Bears shows that the dual optical trunking modules (Tx and Rx), the dual switch fabric modules (dual plane switch), and other component parts of the modular switch, including subscriber service modules (Tx/Rx on the right-hand side) and power supplies (voltage conversion (48V)), comprise environmentally hardened optical and electrical components (all the elements are enclosed within the housing). Bears disclose dual switching modules and differs from the claimed invention in that Bears does not disclose dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules including a first switch fabric module and a second switch fabric module. However, Ishikawa disclose the use of dual optical switching modules coupled to transmit signals to and receive signals from subscriber service modules ((50) as shown in Fig. 3). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide optical switching as taught by Ishikawa to the system of Bears. One of ordinary skill in the art would have been motivated to so such in order to increase switching speed.

Regarding claim 7, the combination of Bears and Ishikawa discloses that the elements are placed within the housing as discussed above and differ from the claimed invention in that the combination does not specifically disclose the optical and electrical components have an operating temperature range of about -40 degrees Celsius to 60

degrees Celsius. However, since the housing and the elements within are placed outside, it would have been obvious that the elements would be able to withstand temperature fluctuation.

Regarding claim 8 (as far as understood), as shown in Fig. 3, Bears shows the fiber terminal is coupled to the subscriber, therefore there must be at least one subscriber service module and a plurality of subscriber service module slots, the at least one subscriber service module interfacing between one or more subscriber end points and the dual switch fabric modules and comprising at least one subscriber signal port, each subscriber service module slot configured to receive one of the at least one subscriber service module (in Fig. 8, the fiber terminal shows dual switch which is also coupled to the subscriber though (Tx/Rx) on the right-hand side). Bears disclose dual switching modules and differs from the claimed invention in that Bears does not disclose dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules including a first switch fabric module and a second switch fabric module. However, Ishikawa disclose the use of dual optical switching modules coupled to transmit signals to and receive signals from subscriber service modules ((50) as shown in Fig. 3). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide optical switching as taught by Ishikawa to the system of Bears. One of ordinary skill in the art would have been motivated to so such in order to increase switching speed.

Regarding claim 9, as shown in Fig. 8, Bears shows that the terminal comprises a plurality of subscriber service modules (Tx/Rx on the right-hand side), with each subscriber service module slot receiving a different subscriber service module.

Regarding claim 10, in Fig. 3, the combination of Bears and Ishikawa shows that the terminal is coupled to the subscriber and differs from the claimed invention in that the combination does not specifically disclose that subscriber service modules collectively provide access to ninety-six homes. However, in another embodiment Bears shows that the terminal (FST) is coupled to plurality of subscriber premises (SP) (see Fig. 7). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide access to plurality of homes in a community which may have ninety-six homes.

Regarding claim 11, as shown in Fig. 8 of Bears, the subscriber service module (Tx/Rx on the right-hand side) is coupled to one or both of the dual trunking modules (Tx and Rx on the left-hand side), via one or both of the dual switch fabric modules (dual plane switch), providing network connectivity for subscriber signal ports contained in the subscriber service module. Bears disclose dual switching modules and differs from the claimed invention in that Bears does not disclose dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules including a first switch fabric module and a second switch fabric module. However, Ishikawa disclose the use of dual optical switching modules coupled to transmit signals to and receive signals from subscriber service modules ((50) as shown in Fig. 3). Therefore, it would have been obvious to an artisan of ordinary skill in the art

at the time the invention was made to provide optical switching as taught by Ishikawa to the system of Bears. One of ordinary skill in the art would have been motivated to so such in order to increase switching speed.

Regarding claim 12 (as far as understood), as shown in Fig. 8, the subscriber service module (Tx/Rx on the right-hand side) multiple fiber, environmentally hardened optical transceiver serving as subscriber signal ports (there are multiple fibers coupled to the transceivers (Tx/Rx); it would have been obvious to provide optical transceiver as environmentally hardened in order to protect the connection and/or fiber; in col. 8, lines 6-32; Bears discloses the use of multimode and single mode fibers; col. 6, lines 8-11 and lines 18-22 Bears disclosed the use of multimode and single mode fibers).

Regarding claim 13, as shown in Fig. 8 of Bears. The combination shows plurality of optical trunking, and differ from the claimed invention in that the combination does not specifically disclose that the first optical trunking module transports signals in one direction and the second optical trunking module transports signals in a different direction, each optical trunking module using one or more fibers. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide the optical trunking at different directions in order to route the signal back to source or alternate path in the event of failure.

Regarding claim 14, as shown in Fig. 8 and discussed in col. 8, lines 6-16 and lines 30-40, Bears discloses that the optical trunk connections comprise one of a layer 2 link aggregation and a layer 3 link aggregation to enable both route and equipment protection (Bears teaches redundancy of the communication network, which provide

routing and protection, therefore Bears discloses at least layer 3, which provides routing between networks).

Regarding claim 15, the combination of Bears and Ishikawa differs from the claimed invention in that the combination does not specifically disclose the fiber access ports used by the dual optical trunking modules receive signals from and transmit signals to a ring network architecture. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to coupled the fiber access port to a ring network architecture in order to transmit and received signal from other network.

Regarding claim 16, as shown in Fig. 7, Bears shows the subscriber access comprises a point to point connection.

Regarding claim 17, as shown in Fig. 8, Bears shows that the dual switch fabric modules are coupled to transmit signals to and receive signals from at least one of the dual trunking modules, the dual switch fabric modules further providing at least one of signal switching, routing, traffic aggregation, and redundancy (see col. 8, lines 6-16 and lines 30-40). Bears disclose dual switching modules and differs from the claimed invention in that Bears does not disclose dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules including a first switch fabric module and a second switch fabric module. However, Ishikawa disclose the use of dual optical switching modules coupled to transmit signals to and receive signals from subscriber service modules ((50) as shown in Fig. 3). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was

made to provide optical switching as taught by Ishikawa to the system of Bears. One of ordinary skill in the art would have been motivated to so such in order to increase switching speed.

Regarding claim 31, Bears discloses fiber terminal (34), as shown in Fig. 3, comprising:

receiving a signal in one of two optical trunking modules (as shown in Fig. 8, the signal is received by Rx on the left-hand side);

transmitting the received signal to one or both dual switch fabric modules (dual plane switch);

switching and aggregating the received signal (the signal is switched by the dual switch);

providing quality of service for the switched signal (the signal is processed by data recovery circuits, processor and OAM for better quality);

transmitting the switched signal to subscriber service modules (the signal transmitted to subscriber service ports (Tx/Rx) on the right hand side coupled to the subscriber); and

transmitting the switched to a subscriber fiber access box of a destination (fiber access (40) is shown on Fig. 3, located on subscriber premise).

As shown in Fig. 3, Bears shows that the dual switch within the fiber terminal (as shown in Fig. 8) can be coupled to the subscriber unit (38) for transmitting and receiving signal. Bears differs from the claimed invention in that Bears does not specifically disclose at least one service signal port. However, it is well known that remote devices,

particularly that which provide services to customers or subscribers, requires monitoring and service over time. Therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide service port in order to maintain and/or upgrade the terminal.

Furthermore, Bears disclose dual switching modules and differs from the claimed invention in that Bears does not disclose dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules including a first switch fabric module and a second switch fabric module. However, Ishikawa disclose the use of dual optical switching modules coupled to transmit signals to and receive signals from subscriber service modules ((50) as shown in Fig. 3). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide optical switching as taught by Ishikawa to the system of Bears. One of ordinary skill in the art would have been motivated to so such in order to increase switching speed.

Regarding claim 33, as shown in Fig. 3, Bears shows that the fiber access box (40) comprises an optical to electrical conversion unit (44) (see col. 5, lines 48-51).

Regarding claim 34, in Fig. 7 of Bears, the combination shows plurality subscribers (SP) coupled to a fiber terminal (FST). In Fig. 8 of Bears, the combination shows that the terminal comprises of plurality of fibers on the right-hand side, which is coupled to the subscriber's fiber access box at the subscriber end (see Fig. 3). The combination differs from the claimed invention in that Bears does not specifically disclose fiber splice cabinet coupled between the modular switch and one or more fiber

access boxes. However, is well known that since the fiber is distributed over plurality of subscriber, therefore it would have been obvious that there exist a fiber splice to divide the signal to plurality of subscribers. Furthermore, it would have been obvious to house the fiber access box in a pedestal.

Regarding claims 35 and 36, as shown in Fig. 3, Bears shows transmitting the switched signal to the subscriber fiber access box comprises transmitting the switched signal to one of a plurality of subscriber fiber access boxes. In view of claim 21, it would have been obvious to provide pedestal and transmit the signal through the pedestal in order to split the signal into plurality of signal.

10. Claims 18-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bears (US Patent No. 5,349,457) in view of Kimbrough et al (US Patent No. 6,362,908).

Regarding claim 18 (as far as understood), Bears discloses communication system, shown in Fig. 2, comprising:

a router (10) to route signal;

an environmentally hardened modular switch ((14) or fiber terminal) coupled to the router and subscriber end points (18), the modular switch receiving signals from the router and the subscriber end points to provide point to point subscriber access; and

a fiber access box at a destination coupled to the modular switch with the fiber access box receiving signals from and transmitting signals to the modular switch (in Fig.

3, Bears shows fiber access box (40) coupled to the modular switch (fiber terminal) for transmitting and receiving signal);

wherein the modular switch comprises dual optical trunking modules (Tx and Rx on the left-hand side), dual optical switch fabric modules (dual plane switch), and a plurality of subscriber service modules (Tx/Rx on the right-hand side), the dual trunking modules coupled to at least one of the dual switch fabric modules and the dual switch fabric modules coupled to the subscriber service modules (see also claim 17).

Bears disclose dual switching modules and differs from the claimed invention in that Bears does not disclose dual optical switch fabric modules coupled to transmit signals to and receive signals from subscriber service modules including a first switch fabric module and a second switch fabric module. However, Ishikawa disclose the use of dual optical switching modules coupled to transmit signals to and receive signals from subscriber service modules ((50) as shown in Fig. 3). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide optical switching as taught by Ishikawa to the system of Bears. One of ordinary skill in the art would have been motivated to so such in order to increase switching speed.

Furthermore, the combination of Bears and Ishikawa differs from the claimed invention in that the combination does not specifically disclose that there exist a network transmitting a signal and coupled to the router or the central office for transmitting and route the signal. However, it is well known that networks are coupled to the router or central office. Kimbrough et al is cited to show such well known concept. In Figs. 1 and

3, Kimbrough et al show that the central office is coupled to various networks for transmitting and receiving signal. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to couple the router (central office) of Bears to various networks as taught by Kimbrough et al. One of ordinary skill in the art would have been motivated to do such in order to provide various services to the subscribers or customers.

Regarding claim 19, Bears disclosed that the modular switch (fiber terminal as shown in Fig. 8) performs at least one of fully redundant switching, aggregation, quality of service classification, and signal transport between the subscriber and the service provider network (see col. 8, lines 6-16 and lines 30-40).

Regarding claim 20, the combination differs from the claimed invention in that the combination does not specifically disclose that the router and the modular switch are coupled through ring architectures. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to coupled the router and the modular switch through ring architectures in order to transmit and received signal from other network.

Regarding claim 21, the combination differs from the claimed invention in that the combination does not specifically disclose that one or more pedestals coupled between the modular switch and the fiber access box, the pedestal providing a fiber breakout point coupling the fiber access box to the modular switch. However, in Fig. 1 or Fig. 6, Bears shows pedestal (or fiber splice) providing a fiber breakout point. Therefore, it

would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide pedestal in order to split the signal to various terminals.

Regarding claim 22, as shown in Fig. 3, Bears shows a fiber distribution device (36) coupled to the modular switch (34).

Regarding claim 23, as shown in Fig. 3, Bears shows that the fiber access box (40) comprises an optical to electrical conversion unit (44) (see col. 5, lines 48-51).

Regarding claim 24, the combination differs from this claim in that the combination does not specifically disclose that the fiber access box comprises a voice over Internet protocol media gateway. However, as discussed above by Kimbrough et al, since the central office can be coupled to various network of services, therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide voice over internet protocol service and provide corresponding hardware and software gateway at the fiber access terminal. One of the advantages of doing such is for ease of management since data and voice is transmitted in one network.

Regarding claim 25, in view of the above, as shown in Fig. 3, Kimbrough et al shows intelligent home networking equipment coupled to the fiber access box (such as the ONU), the home networking equipment located within a subscriber premise.

Regarding claim 26, in Fig. 7, Bears shows plurality of fiber access boxes (Fig. 7 shows plurality of subscriber premises which each has fiber access box).

Regarding claim 27, in Fig. 7 of Bears, the combination shows plurality subscribers (SP) coupled to a fiber terminal (FST). In Fig. 8 of Bears, the combination

shows that the terminal comprises of plurality of fibers on the right-hand side, which is coupled to the subscriber's fiber access box at the subscriber end (see Fig. 3). The combination differs from the claimed invention in that the combination does not specifically disclose an environmentally hardened fiber splice cabinet coupled between the modular switch and one or more fiber access boxes. However, is well known that since the fiber is distributed over plurality of subscriber, therefore it would have been obvious that there exist a fiber splice to divide the signal to plurality of subscribers. Furthermore, it would have been obvious to provide environmentally hardened fiber splice cabinet in order to protect the splice fiber from environmental damage.

Regarding claims 28 and 29, in view of the rejection above, further, it would have been obvious that the environmentally hardened fiber splice cabinet includes multiple fiber access ports, accommodating plurality of fibers, for one or more fiber trunk cables and one or more subscriber service cables in order to provide access to plurality of subscriber.

Regarding claim 30, as discussed above, Kimbrough et al show that the router (central office) comprises an internet protocol router (since internet network (18) is coupled to the router, therefore it would have been obvious to provide internet router to route internet protocol signals).

Regarding claim 32, the transmission lines coupled to the switch receive and route the signal to the switch (the switch within the fiber service terminal (FST) is coupled to the central office as shown Fig. 2 of Bears; therefore the switch receives signal from the network).

Response to Arguments

11. Applicant's arguments with respect to claims 1, 18 and 31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Naraoka et al (JP409133607A) is cited to show monitoring changeover apparatus for beam-of-light line.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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